



Trans-Lake Washington Project

Environmental Findings

Built Environment



Trans-Lake Washington Project

Parklands

Bob Swope, CH2M HILL



Protective Regulations

- Section 4(f) of the U.S. Department of Transportation Act of 1966
 - applies to public parks, recreation areas and trails, wildlife and waterfowl refuges, and historic sites
 - requires that the use of these resources can only be approved if:
 - there are no feasible and prudent avoidance alternatives
 - the project includes all possible planning to minimize harm
 - impacts are either direct (property acquisition) or proximity (increased noise, degradation of the visual setting, or access restrictions)



Protective Regulations

- City of Seattle Ordinance 118477 (1997)
 - specifies that all lands and facilities held now or in the future by the City for parks and recreational purposes must be preserved for such use
 - requires that 'no such land or facilities can be sold, transferred, or changed from park use unless the City receives in exchange land or a facility of equivalent or better size, value, location, and usefulness in the vicinity' (serving the same community)



Protective Regulations

- **Olmsted Plan for Seattle's Parks, Boulevards, and Playgrounds**
 - applies to Washington Park/Arboretum
 - heightens the historic and cultural significance of these resources / close scrutiny by Friends of Seattle's Olmsted Parks
 - City's Parks and Recreation COMPLAN recommends that Olmsted Parks be designated for special consideration as Park Historic Resource Areas



Seattle

	Alternative							
	1	2	3	4	5	6	7	8
Direct Impact	Measured in % of total park area (if known)							
I-5 Open Space	-	-	-	X	-	-	X	X
10 th Ave E & E Roanoke	-	-	31.0	31.0	12.0	24.0	51.0	51.0
Bagley Viewpoint	-	5.0	30.0	75.0	30.0	23.0	100.0	100.0
Montlake Bike Path	-	-	X	X	X	X	X	X
McCurdy Park	-	38.0	100.0	100.0	100.0	100.0	100.0	100.0
East Montlake Park	-	3.0	17.0	20.0	4.0	12.0	12.0	23.0
Washington Park /Arboretum	-	1.1	0.4	1.0	0.9	1.5	0.5	0.7
TOTAL PARKS IMPACTED	0	4	6	7	6	6	7	7



Medina to I-405

	Alternative							
	1	2	3	4	5	6	7	8
Direct Impact	Measured in % of total park area (if known)							
Fairweather Nature Preserve	-	1.0	1.0	2.0	-	3.5	-	3.0
Points Loop Trail	-	X	X	X	X	X	X	X
TOTAL PARKS IMPACTED	0	2	2	2	1	2	1	2



I-405 to Redmond

	Alternative							
	1	2	3	4	5	6	7	8
Direct Impact	Measured in % of total park area (if known)							
SR 520 Trail	-	X	X	X	X	X	X	X
Sammamish River Park and Trail	-	X	X	X	X	X	-	-
Town Center Trail and Open Space	-	X	X	X	X	X	-	-
TOTAL PARKS IMPACTED	0	3	3	3	3	3	1	1



Overview

	Alternative							
	1	2	3	4	5	6	7	8
# of Parks Impacted	0	9	11	12	10	11	9	10
# of Acres Acquired	0	3.5	4.0	5.8	4.0	6.4	3.9	5.4
Total "Takes"	0	0	1	1	1	1	2	2



Parklands Ratings

RATING SCALE

WORST					BEST				
1	2	3	4	5					
Most Impacts	Medium Impacts	Least Impacts	No Impact	Improved Environment					

Ratings Table

Parklands	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Impacts and Extent of Mitigation Required	4 no	3 least	2 medium	1 most	2 medium	1 most	2 medium	2 medium
Feasibility of Proposed Mitigation	NA	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible
Ranking	8	7	4	2	5	1	6	3



Displacements

Lorie Parker, CH2M HILL



Seattle

Structures Potentially Displaced

Existing Land Use	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/ BRT	8: HOV/ BRT, GP
Multi-family							3	5
Single-family						1	3	3
Commercial		1	1	4	14	14	12	12
Industrial					8	8	9	9
Public		2	2	2	2	2	2	2
TOTAL		3	3	6	24	25	29	31



Medina to I-405

Structures Potentially Displaced

Existing Land Use	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/ BT	8: HOV/ BRT, GP
Multi-family								
Single-family		2	3	3	5	5	3	2
Commercial			6	12	8	11	6	12
Industrial				1		1		1
Public								
TOTAL	0	2	9	16	13	17	9	15



I-405 to Redmond

Structures Potentially Displaced

Existing Land Use	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/ BRT	8: HOV/ BRT, GP
Multi-family								
Single-family								
Commercial		5	6	6	4	5		1
Industrial		3	3	3	2	2		
Public								
TOTAL	0	8	9	9	6	7	0	1



I-90 to SR 520

Structures Potentially Displaced

Existing Land Use	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/ BRT	8: HOV/ BRT, GP
Multi-family								
Single-family		3	3	3				
Commercial								
Industrial								
Public								
TOTAL	0	3	3	3	0	0	0	0



Summary

Structures Potentially Displaced

Existing Land Use	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/ BRT	8: HOV/ BRT, GP
Seattle	0	3	3	7	24	25	29	31
Medina to I-405	0	2	9	16	13	17	9	15
I-405 to Redmond	0	8	9	9	6	7	0	1
I-90 Corridor/ Bellevue	0	3	3	3	0	0	0	0
TOTAL	0	16	24	35	43	49	38	47



Displacements Ratings

RATING SCALE

WORST → BEST				
1	2	3	4	5
Most Impacts	Medium Impacts	Least Impacts	No Impact	Improved Environment

Ratings Table

Displacements and Disruption	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Impacts and Extent of Mitigation Required	4 no	3 least	2 medium	2 medium	2 medium	1 most	2 medium	1 most
Feasibility of Proposed Mitigation	NA	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible
Ranking	8	7	6	5	3	1	4	2



Land Use

Comparison of Estimated Direct Land Use Impacts in Acres^a

Existing Land Use Type	Alternatives							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Single-Family Residential	0.0	2.7	3.8	6.8	2.7	4.2	3.3	5.8
Multi-Family Residential	0.0	0.1	0.3	1.1	0.7	0.5	1.1	1.4
Commercial	0.0	8.9	13.5	24.4	18.9	26.6	7.3	18.4
Industrial	0.0	2.9	4.6	7.6	6.4	9.1	1.4	4.5
Public ^b	0.0	11.7	18.6	19.0	23.6	26.2	14.8	16.5
Other ^c	0.0	0.2	0.4	0.7	0.2	0.7	0.2	0.8
Vacant	0.0	6.9	11.6	13.7	14.9	19.6	8.8	10.1
Total	0.0	33.4	52.8	73.0	67.4	86.9	36.9	57.5
Percent Outside SR 520 Corridor	--	45%	28%	21%	36%	28%	0	0

^a Acreage is shown to the tenth place by land use in order to show a complete range of potential impacts; however, these numbers only represent gross estimates based on potential alignments, and will be further refined in the EIS phase.

^b Public includes all lands that are publicly owned, such as parks, universities, government land, etc.

^c Other includes religious institutions.



Land Use Ratings

RATING SCALE

WORST				BEST	
1	2	3	4	5	
Most Impacts	Medium Impacts	Least Impacts	No Impact	Improved Environment	

Ratings Table

Land Use	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Impacts and Extent of Mitigation Required	4 no	3 least	3 least	2 medium	2 medium	1 most	3 least	2 medium
Feasibility of Proposed Mitigation	NA	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible
Ranking	8	7	5	2	3	1	6	4



Cultural Resources

Potential Impacts	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
SR 520 Corridor Impacts								
Seward School				X		X		
Arboretum Sewage Trestle					X	X	X	X
Montlake Bridge			X		X	X	X	X
Outside SR 520 Corridor Impacts (HCT Only)								
Mount Baker Ridge Tunnel		X	X	X				
Pioneer Square Historic District		X	X	X				
Frederick W. Winters House		X	X	X				
Total Potential Number of Cultural Resources Impacted	0	3	4	4	2	3	2	2



Cultural Resources

- Includes potential direct and proximity impacts
- Many impacts likely avoided during more detailed design in EIS
- Remaining impacts likely “no adverse effect” Section 106 determination
- Impacts require Section 4(f) Evaluation



Cultural Resources Ratings

RATING SCALE

WORST					BEST				
1	2	3	4	5					
Most Impacts	Medium Impacts	Least Impacts	No Impact	Improved Environment					

Ratings Table

Cultural Resources	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Impacts and Extent of Mitigation Required	4 no	2 medium	1 most	1 most	3 least	2 medium	3 least	3 least
Feasibility of Proposed Mitigation	NA	2 low feasibility	2 low feasibility	2 low feasibility	4 medium feasibility	2 low feasibility	4 medium feasibility	4 medium feasibility
Ranking	8	4	2	1	6	3	7	5



Visual Quality

- Most impacts from alternatives establishing new corridors (HCT)
- Widening existing corridors less impact than establishing new corridors
- Reworking surface streets at interchanges moderate to high impacts



Visual Quality Ratings

RATING SCALE

WORST					BEST				
1	2	3	4	5					
Most Impacts	Medium Impacts	Least Impacts	No Impact	Improved Environment					

Ratings Table

Visual Quality	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Impacts and Extent of Mitigation Required	4 no	1 most	1 most	1 most	2 medium	2 medium	3 low	3 low
Feasibility of Proposed Mitigation	NA	1 least feasible	1 least feasible	1 least feasible	3 medium feasibility	3 medium feasibility	4 most feasible	4 most feasible
Ranking	1	6	7	8	4	5	2	3



Air Quality

- Increased miles traveled with GP alternatives (Alternatives 4, 6, and 8) causes most impact
- Differences in overall impacts between alternatives are small
- May be different localized impacts - to be analyzed in EIS



Air Quality Ratings

RATING SCALE

WORST → BEST				
1	2	3	4	5
Most Impacts	Medium Impacts	Least Impacts	No Impact	Improved Environment

Ratings Table

Air Quality	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Impacts and Extent of Mitigation Required	3 least	3 least	3 least	2 medium	3 least	2 medium	3 least	1 most
Feasibility of Proposed Mitigation	NA	3 medium feasibility	3 medium feasibility	3 medium feasibility	3 medium feasibility	3 medium feasibility	3 medium feasibility	3 medium feasibility
Ranking	7	8	6	3	5	2	4	1



Water Resources

- Wider footprint alternatives create more impervious surface area
- More impervious surface area requires greater volumes of stormwater detention and treatment



Water Resources Ratings

RATING SCALE

WORST → BEST				
1	2	3	4	5
Most Impacts	Medium Impacts	Least Impacts	No Impact	Improved Environment

Ratings Table

Water Resources	Alternative							
	1: No Action	2: S&P, I-90 LRT	3: HOV, I-90 LRT	4: HOV, GP, I-90 LRT	5: HOV, 520 HCT	6: HOV, GP, 520 HCT	7: HOV/BRT	8: HOV/ BRT, GP
Impacts and Extent of Mitigation Required	3 least	2 medium	1 most	1 most	1 most	1 most	1 most	1 most
Feasibility of Proposed Mitigation	NA	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible	1 least feasible
Ranking	8	7	3	2	4	1	6	5



Summary

- Least impacts - Alternative 2: Safety & Preservation, I-90 LRT
- Second least impacts - Alternative 7: SR 520 HOV/BRT
- Most impacts - Alternative 6: SR 520 HOV/GP, SR 520 HCT